

Cartadis TC11N

User's and technical
Manual V2.0

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≧ **SAFETY** ≦

This CMF product and supplies are manufactured and certified to strict safety regulations, electromagnetic regulations and established environmental standards.

≧ **WARNING !** ≦

Any unauthorised alteration, which may include the addition of new functions or connection of external devices, may impact the product certification. Please contact your CMF representative for more information.

➡ **Warning markings**

All warning instructions marked on or supplied with the product should be followed.

➡ **Electrical supply**

This product shall be operated from the type of electrical supply indicated on the product's data plate label. If you are not sure that your electrical supply meets the requirements, please consult your local power company for advice.

To disconnect all electrical power to the product, the disconnect device is the power cord. Remove the plug from the electrical outlet.



➡ **Intervention**

Any installation, removing or intervention on the Cartadis unit require previously to unplug the copier or the multifunction. If not, damages may occur on the copier or on the multifunction.

➡ **Operator accessible areas**

This product has been designed to restrict operator access to safe areas only. Operator access to hazardous areas is restricted with covers or guards which would have to be removed using a tool. Never remove these covers or guards.

➡ **Maintenance**

Any operator product maintenance procedure will be described in the user documentation supplied with the product. Do not carry out any maintenance on the product which is not described in the customer documentation.

➡ **Cleaning your product**

Before cleaning this product, unplug the product from the electrical outlet. Always use materials specifically designated for this product. The use of other materials may result in poor performance and may create a hazardous situation.

Do not use aerosol cleaners, they may be flammable under certain circumstances.

*For more information on Environment, Health and safety in relation to this CMF product and supplies, please contact the following customer help lines:
Europe : +33 1 48 77 40 60.*



The CE mark applied to this product symbolises CMF's declaration of conformity with the following applicable European Union Directives as of the dates indicated:

➡ **January 1, 1995 :**

Council directive 73/23/EEC, amended by Council Directive 93/68/EEC, approximation of the laws of the member states related to low voltage equipment.

➡ **January 1, 1996 :**

Council directive 89/336/EEC, approximation of the laws of the member states related to electromagnetic compatibility.

A full declaration of conformity, defining the relevant directives and referenced standards, can be obtained from your CMF representative.

≧ **WARNING !** ≦

In order to allow this equipment to operate in proximity to Industrial, Scientific and Medical (ISM) equipment, the external radiation from the ISM equipment may have to be limited or special mitigation measures taken.

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INTRODUCTION

Thank you for your choosing our equipment to manage and control access to your copier and your privative magnetic cards.

The **Cartadis TC11N** features three functioning modes using **Cartadis** magnetic cards in three types of installation :

- copier access control,
- keyboard manual debit of an amount,
- timer mode control of an other equipment.

Setting one of above modes is carried out by means of the "mode" parameter accessible from administration menu. The **Cartadis TC11N** is plant adjusted in "copier" mode (see page 12).

Those magnetic cards may be programed by the person in charge of the copier on the unit itself or sold by the **Cartadis DRC4** dispenser/reloader.

Several **Cartadis TC11N** are incompatible by default, i.e. cards issued on one unit cannot be used on another. A procedure to make the units compatible with each other can be run, once completed, the magnetic card can then be used on several units.

All administration functions are accessible through clear menus in English.

GENERAL PRINCIPLES

2.1. FUNCTIONS (COPIER MODE)

Cartadis TC11N enables you to control access to a copier (of any make) or to a similar unit. It locks the copier out until a user inserts a magnetic card. Once the card has been read and accepted, **TC11N** displays on the screen the information contained in the card and validates the copier. With each photocopy made, the display is updated to inform the user of the number of copies remaining on his card. Pressing any key on the keyboard will disable the copier, eject the card and update the magnetic track.

TC11N has a special electronic storage called EEPROM to ensure retention of information even when the power is off. This memory saves : audit information, copier parameters and copy prices.

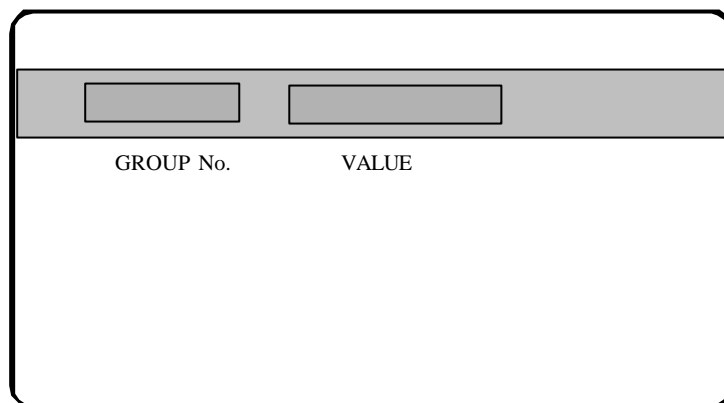
With each **Cartadis TC11N**, two function cards are supplied (OPERATOR's and ADMINISTRATOR's card). They give access to the following functions :

- issuing of cards,
- statistics,
- prices setting,
- copier setting,
- **TC11N** setting.

2.2. MAGNETIC CARD DESCRIPTION

THE USER'S CARD

The magnetic track of a user's card contains two information fields. Its structure is as follows:



Group no. :

This field is automatically written on all cards on recording with **TC11N's** group 1. A card group must be the same as **Cartadis TC11N's** group in order to be accepted by the unit.

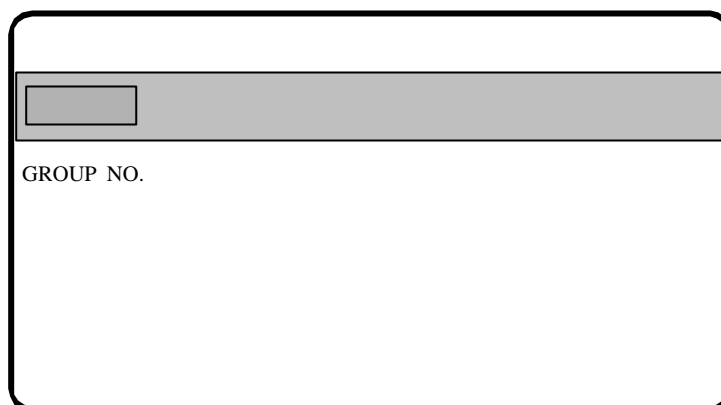
Value :

This field may have any value between 0 and 999 999 (0 and 500 for disposable cards). This value represents a number of units, of copies or an amount of money. This value is reduced each time a copy is being made, and it is re-recorded on the card at the time of ejection. Once it comes down to 0, the copier is automatically disabled, then the card is ejected.

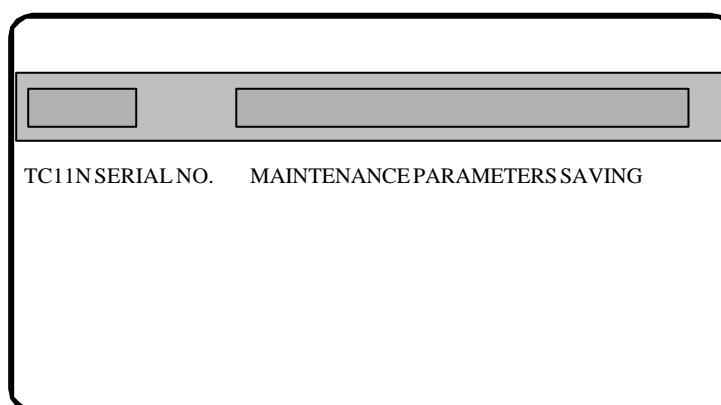
The life time of a reloadable magnetic card depends on the number of transactions it has carried out. These are counted by each card. If this number is over 3000, then it won't be possible to record the card again.

THE OPERATOR'S CARD

The magnetic track of an operator's card only contains a group number.



The **OPERATOR's** card gives access to a subset of the programming functions. It is accepted by a **Cartadis TC11N** if one of the three **TC11N** group number matches the card one. This card is supplied with the unit.

THE ADMINISTRATION CARD

The **ADMINISTRATION** card gives access to all the programming functions. It is accepted by a **Cartadis TC11N** with an identical **SERIAL** number. It acts also as a saving area of **TC11N** parameters, in case of "memory error" all the main parameters are restored from reading this area. This card is supplied with the unit.

2.3. EXAMPLES OF USE

EXAMPLE 1 :

Simple case of a copy shop using a **TC11N** to sell copy subscription cards. The values of these cards are 100, 200, or 500 copies.

Solution :

By means of the Administration card the copy shop owner creates a stock of cards once a week. Then these cards are sold by the copyshop employees.

EXAMPLE 2 :

The copy shop owner in example 1 owns a color copier and wishes to sell color copies at 20 times the price of black and white copies.

Solution :

The "price 1" of the **TC11N** installed on the color copier is setup to 20.

2.4. FUNCTIONS (TIMER MODE)

In case **Cartadis TC11N** runs in "timer" mode, it generally launches an other equipment (games, lighting, etc ...) as soon as a card is being inserted into the reader. The user's card remains inside the **Cartadis TC11N** as long as the equipment is used, an interval of time of a set price is deducted from the card. Values of both interval of time and price may be adjusted from administration menu in "Price setup" sub-menu. "Timer" parameter is defined in seconds.

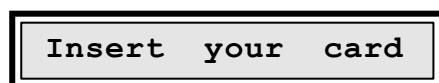
2.5. FUNCTIONS (KEYBOARD MODE)

In "keyboard mode, **Cartadis TC11N** is autonomous. It is not connected to an other equipment. Such mode enables an amount entered on the keyboard to be deducted from a **Cartadis** card.

3

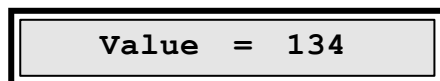
TC11N AND ITS USERS

Cartadis TC11N confirms that it is ready for work by displaying the following message:



Insert your card

Once this message has been displayed, a user's card can be inserted into the **TC11N**. For example if a user's card with a value of 134 copies is inserted the **TC11N** display will be:




Value = 134

After the information present on the card has been displayed, **Cartadis TC11N** validates the copier. From now on, each copy made will be deducted from the card value.

The copier can be disabled by pressing any key of **TC11N**, or by allowing the card value to reduce to 0. Whilst the copier is being disabled, the card is updated and ejected.

In case the value is less than the A4 price (see page 18) the message "value insufficient" is displayed and the card is ejected.

The remaining value of such a card can be transferred to an other one as follows:

<p><i>a</i></p> <p>Press the  key</p> <div data-bbox="563 745 1000 826">Carry = 0</div>
<p><i>b</i></p> <p><i>Insert the card to transfer, for example, a card with 30 units if A4 price is 50.</i></p> <div data-bbox="563 1014 1000 1095">Carry = 30</div> <p><i>The card is ejected with a zero value.</i></p>
<p><i>c</i></p> <p><i>Insert the card to which TC11N adds the carry value, for example a card with a 200 units value.</i></p> <div data-bbox="563 1344 1000 1424">Value = 230</div> <p><i>The card is ejected with an updated value.</i></p>

TC11N AND ITS ADMINISTRATOR

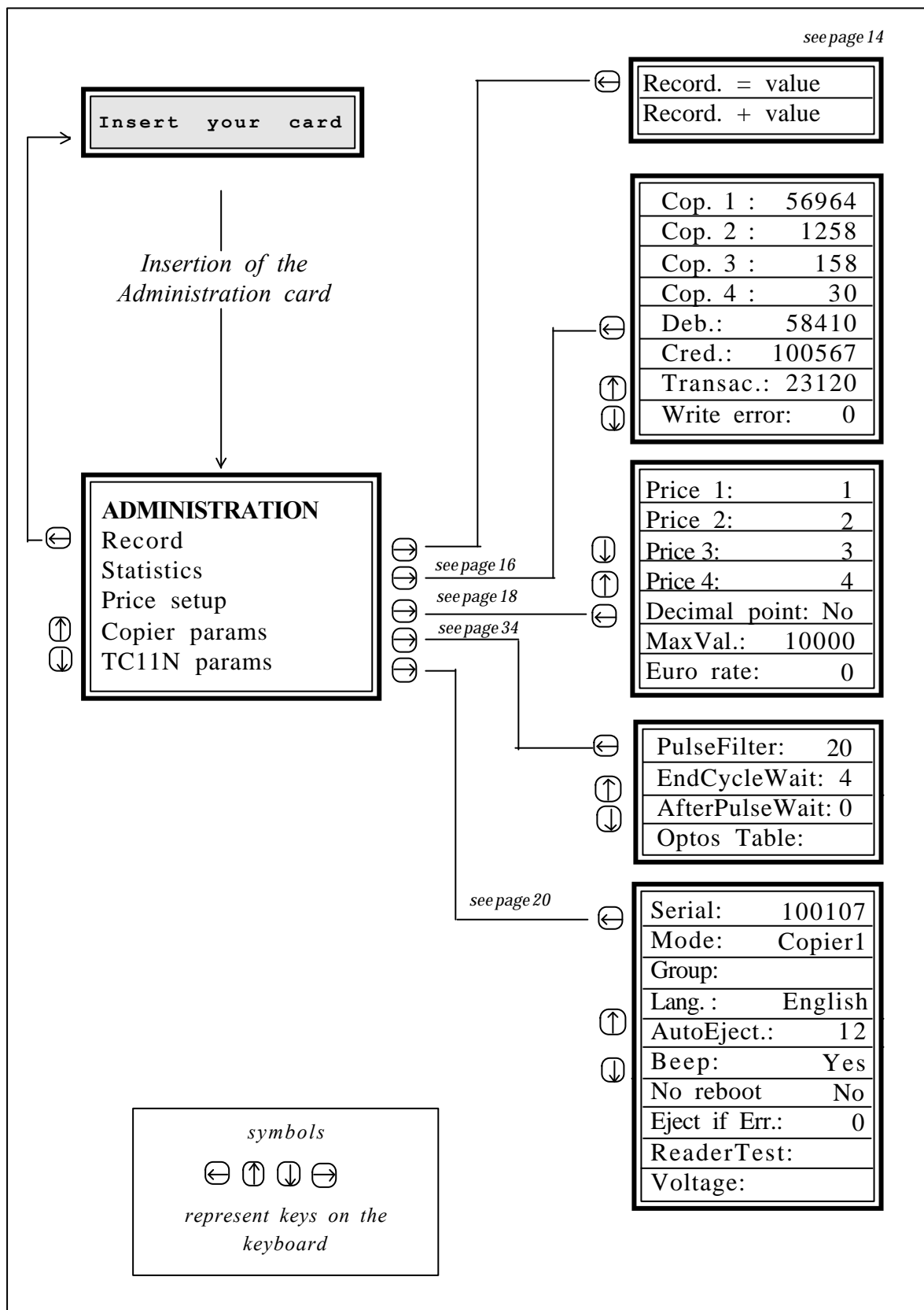
All **Cartadis TC11N** programming functions are accessible once the **ADMINISTRATION** card has been inserted. As previously mentioned, this card contains the serial number of the **Cartadis TC11N** with which it has been delivered. It can run with one only unit, the unit which contains in its memory a serial number identical with the one written on the magnetic track.

This card normally remains in the possession of the person in charge of the copier and is generally not made available to users.

All **Cartadis TC11N** functions are organized in "menus" and "submenus". The sequence of these menus is described in a diagram on the next page.

If one of the following parameters is modified, the **Cartadis TC11N** requires the administration card to save them at exit menu time:




- price 1 (A4 Black and White) and price 2 (A3 Black and White),
- Decimal point,
- End cycle wait, After pulse wait parameters,
- Group1, Language, Automatic ejection delay parameters,
- Functioning mode (copier 1, copier 2 etc ...).




After a 4 minute inactivity time within the ADMINISTRATION function, **Cartadis TC11N** automatically leaves this program and reverts to user mode.


4.1. SEQUENCE OF MENUS

All **Cartadis TC11N** functions are accessible by means of "menus". A "menu" is a set of messages related with management or programming functions. Due to the size of the **Cartadis TC11N** display (16 characters), only one message can be displayed at a time.





In order to select an element of the menu other than the one displayed, you just need to press keys  or  to call the next or the previous element to the display. To call the function selected, use key .

To leave a menu and return to the upper level menu, press key .

This key also enables to leave the main **ADMINISTRATION** and **OPERATOR** menus and to set **Cartadis TC11N** back to normal operation.

In addition to the need for moving across the various menus, the Administrator will have to enter numbers, e.g. a value, etc. In this case, **Cartadis TC11N** will show that it is waiting for an entry by having its cursor blink .

The meaning of the keys will then be as follows :

- keys  to  to enter the digits of the number.
- key  to cancel the last entered digit.
- key  to validate the entry of the number.

4.2. MAGNETIC CARDS RECORDING

The magnetic cards in use are in **High Coercitivity** technology, i.e. they are not sensitive to magnetic fields in office environments: magnetic clip holder, keys, magnetized scissors, etc. This feature increases the safety of all information contained in the cards.

Two types of cards can be used :

- reloadable cards, (max value 999 999).
- disposable cards, (max value 500).

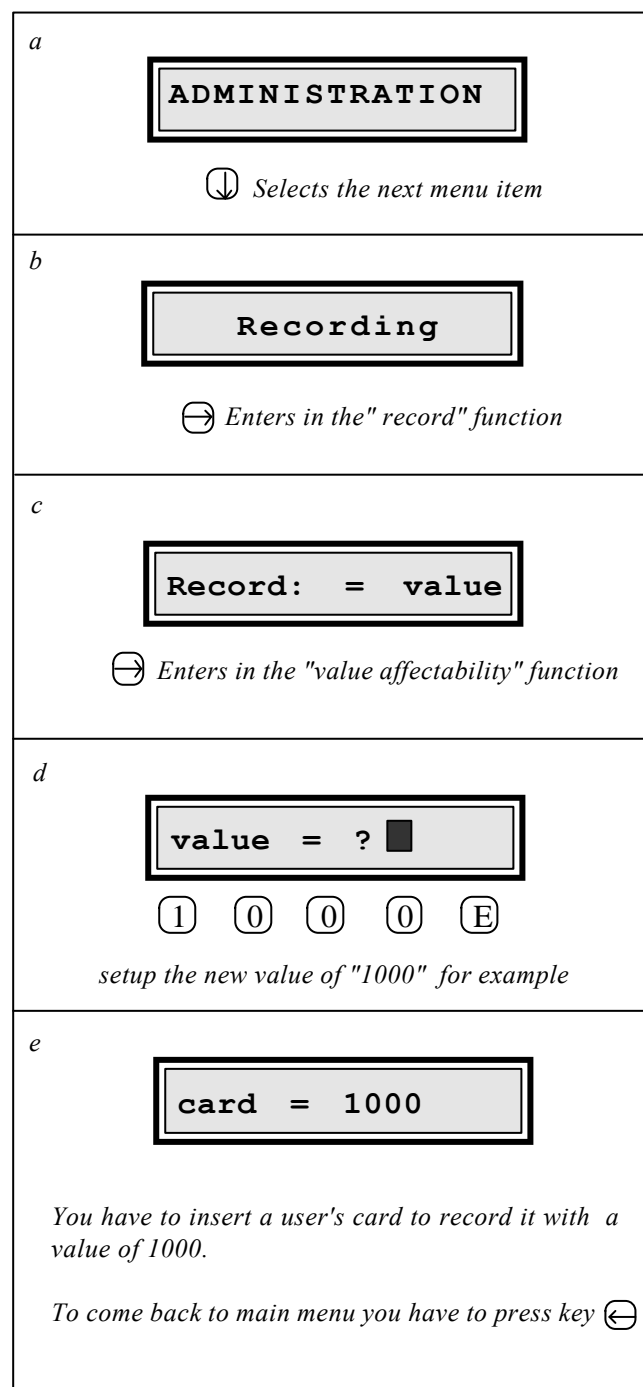
Both of them are initially supplied blank, without any data. They have therefore to first be recorded before use. They are programmed by means of the recording function described in this section. It is also possible to re-record a reloadable card once its value has come down to 0 or a value has to be changed, on the contrary it is not possible to re-record a disposable card. **Cartadis TC11N** 's reliability depends to a large extent on the good physical condition of the cards in use. Therefore, reloadable cards with a worn-out magnetic track, i.e. with their plastic surface protection deeply scratched, should not be re-recorded. In order to be protected against such re-recording, **Cartadis TC11N** checks that they have not carried out more than 3 000 transactions.

RECORDING A NEW VALUE

A "new value" can be recorded on a reloadable magnetic card whatever the status of the card:

- blank,
- empty,
- having a value,
- displaying the error message "illegal extract" .

At recording, the card group is initialized with the group 1 of the **TC11N**. To achieve this task the handling from the **ADMINISTRATION** menu is:



ADDING A VALUE TO A CARD

A "value" can be added to a card, in this case the former value is added to the keyed value to create the actual new value. Of course, this is applicable only to reloadable cards.

To add a value to a card the handlings from the ADMINISTRATION menu are:

<i>a</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">ADMINISTRATION</div> <p>⏴ Selects the next menu item</p>
<i>b</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Recording</div> <p>⏴ Enters in the "record" function</p>
<i>c</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Record. +value</div> <p>⏴ ⏴ Enters in the "add value" function</p>
<i>d</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">value = ? ■</div> <p>① ② ③ ④ ⑤</p> <p>setup the new value of "1000" for example</p>
<i>e</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">card + 100</div> <p><i>You have to insert a reloadable user's card to add it the value of 100.</i></p> <p><i>To come back to main menu, press a key ⏴</i></p>

4.3. STATISTICS COUNTERS

Eight counters are available from the main administration or operator menu :

Cop.1 to Cop.4: These counters represent the number of copies made with magnetic cards. Cop.1 represents the number of A4-size Black and White copies, Cop.2 the number of A3-size Black and White copies, Cop.3 represents the number of A4-size colour copies. and Cop.4 the number of A3-size colour copies.

Deb.: (Debit) This counter represents the number of units (or amount of money) debited from the cards for all the sizes.

Cred.: (Credit) This counter represents the number of units (or amount of money) recorded on the cards. It is increased at each card recording.

Transac.: (Transaction) This counter represents the number of user transactions. A transaction is the succession of the following operations:

- insertion of a user's card,
- taking copies (any quantity),
- recovery of the user's card.

It is intended for service purposes, it allows a service intervention to be planned, for example every 20 000 transactions.

Write error: This counter represents the number of errors occurred while writing on a magnetic card. On a unit in good condition this counter must always be at 0. On a site equipped with several TC11N's, it is not always easy for the service engineer to locate a unit with intermittent writing errors. This counter enables him to identify it with certainty and therefore carry out a corrective service on the faulty unit. This counter can be modified, it can for example be reset after service.

The counters "Cop.1 to Cop.4, Deb., Cred., Transac." can't be modified and they evolve as long as the unit is used.

The next page describes the handlings to display these counters from main menu.

<i>a</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">ADMINISTRATION</div> <p>⬇ ⬇ <i>Selects the "statistics" menu item</i></p>
<i>b</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Statistics</div> <p>➡ <i>Enters in the "statistics" function to display the first counter "Copies"</i></p>
<i>c</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Cop.1: 56964</div> <p>⬇ <i>goes to the next counter</i></p> <div style="border: 2px solid black; padding: 5px; text-align: center;">Cop.2: 1258</div> <p>⬇ <i>goes to the next counter</i></p> <div style="border: 2px solid black; padding: 5px; text-align: center;">Cop.3: 158q</div> <p>⬇ <i>goes to the next counter</i></p> <div style="border: 2px solid black; padding: 5px; text-align: center;">Cop.4: 30</div> <p>⬇ <i>goes to the next counter</i></p>
<i>d</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Deb. 58410</div> <p>⬇ <i>goes to the next counter</i></p>
<i>e</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Cred. 100567</div> <p>⬇ <i>goes to the next counter</i></p>
<i>f</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Transac. 23120</div> <p>⬇ <i>goes to the next counter</i></p>
<i>g</i>	<div style="border: 2px solid black; padding: 5px; text-align: center;">Write error 0</div> <p>⬅ <i>returns to main menu</i></p>

4.4. PRICE SETUP AND MAXIMUM VALUE

Depending on paper size, a price is selected among the prices 1 to 4. It is subtracted from the card at each copy made. Prices families applicable per user's category can be set up, contact the Cartadis technical department for further information. By default, the prices are:

price 1 = 1	(A4-size Black and White)
price 2 = 2	(A3-size Black and White)
price 3 = 3	(A4-size Colour)
price 4 = 4	(A3-size Colour)

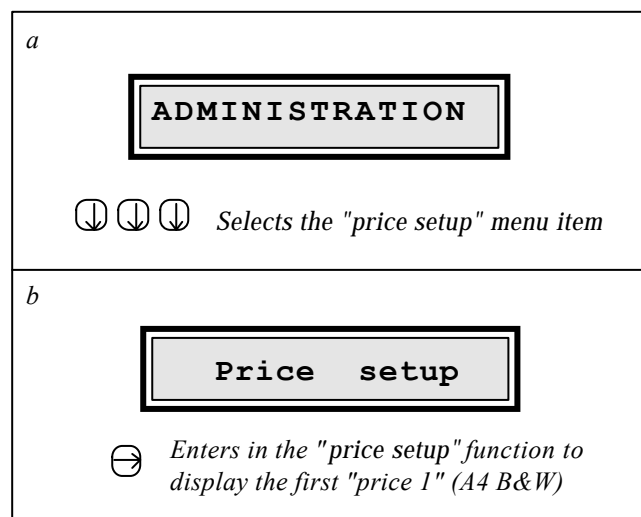
The value of a card represents either a number of copies or a number of units or an amount of money. It's a matter of convention and organization. According to the convention chosen, prices 1 to 4 have to be set up.

In the case of a money amount, it is possible to display the card value and all the related (Debit, Credit) counters with a decimal point and two figures behind. The "decimal point" parameter must be set to "Yes" for a displaying with decimal point, or to "No" for a displaying without decimal point.

For safety reasons, cards having a value higher than a given limit may be rejected. This limit is defined by the parameter "MaxVal", its default value is 10 000 units. For deleting this limit and thus having all the cards accepted whatever their value, the value 0 must be entered.

Sites having chosen to load their cards with money and to have therefore prices in currency, a mechanism is intended for the change to the European money: the Euro. If you are concerned, you can get the detailed procedure to the **Cartadis** technical department. If you are not concerned, you have to make sure that the parameter Euro remains to 0.

The following table describes the handlings to display and modify these values.



continuation next page

c

Price 1: 1

to go to the price 2 (A3 B&W)
 ----- or
 to modify the price 1

5 cents for example, Key E validates the value.

d

Price 4: 4

to go to the next parameter
 ----- or
 to modify the price 4 (A3 colour)

10 cents for example, Key E validates the value.

e

Decimal point No

to modify the "Decimal point" parameter
 Yes to set the "Decimal point" ON

f

MaxVal. 10000

to modify the "Maximum value" parameter
 300 units maximum, for example

g

Euro 0

remains to 0 for the sites not concerned with the change to Euro.

returns to main menu

4.5. GROUP NUMBER SETUP

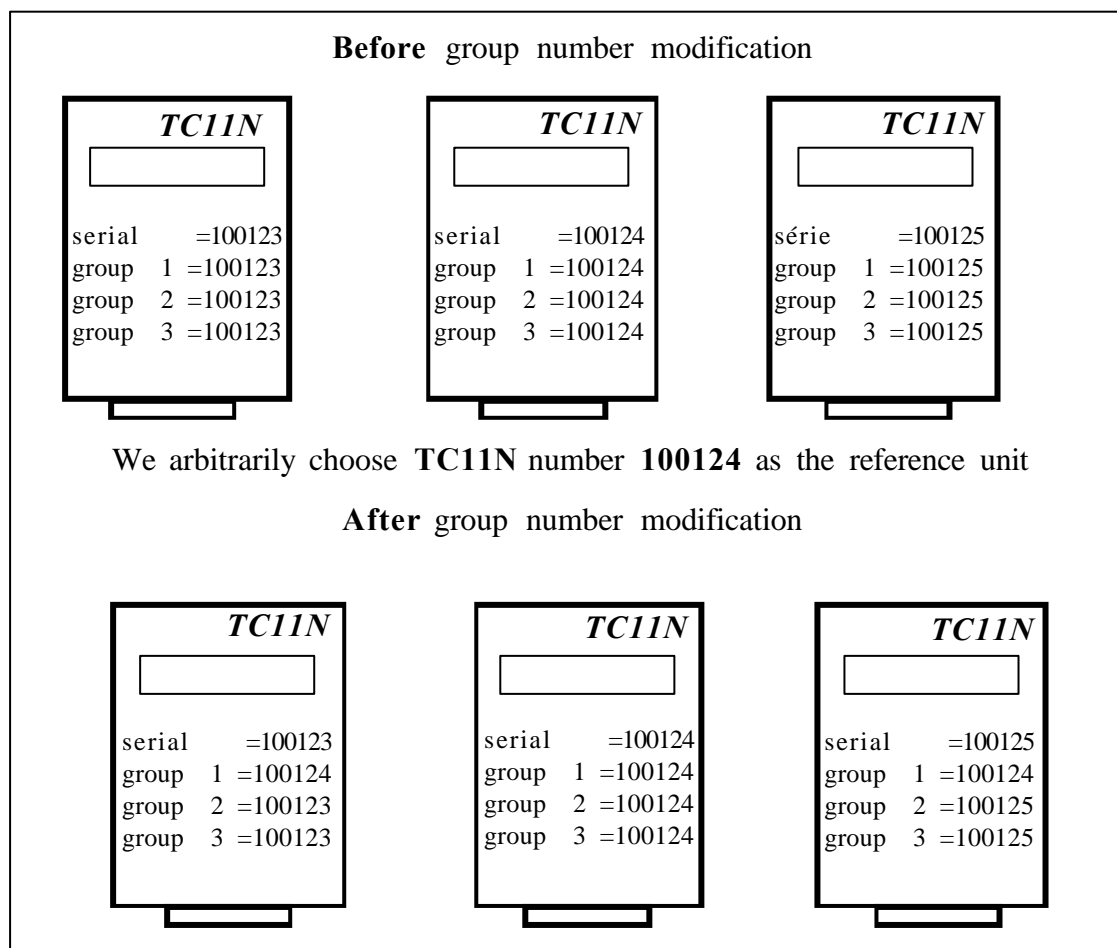
The idea of "Group number" enables a set of user's cards to be accepted or rejected from a **Cartadis TC11N**. The **Cartadis TC11N** memory stores up to 3 group numbers which can be displayed or modified from the "TC11N parameters" sub-menu (the number of groups can be increased to 10, in case of need, contact the Cartadis technical department).

As we saw page 6, a user's card is always written with the group number 1 of the unit recording the card, from ADMINISTRATION menu.

A **Cartadis TC11N** only accepts a user's card if the card group number matches one of its 3 group numbers.

The group numbers of a unit can only be modified by reading the number written on Administration cards. This procedure of high safety protects operators from the use of cards coming from **Cartadis** units they do not own.

As example, let us take the case of a three **TC11N** unit installation, with the following serial numbers: 100123, 100124 and 100125. In order for a user's card to operate on any and all of three **TC11N**, we arbitrarily choose **TC11N** number 100124 as the reference unit, then we modify the group number 1 of both other units (see following picture).



The group numbers are plant initialized as follows:

Group 1	=	TC11N serial number
Group 2	=	TC11N serial number
Group 3	=	TC11N serial number

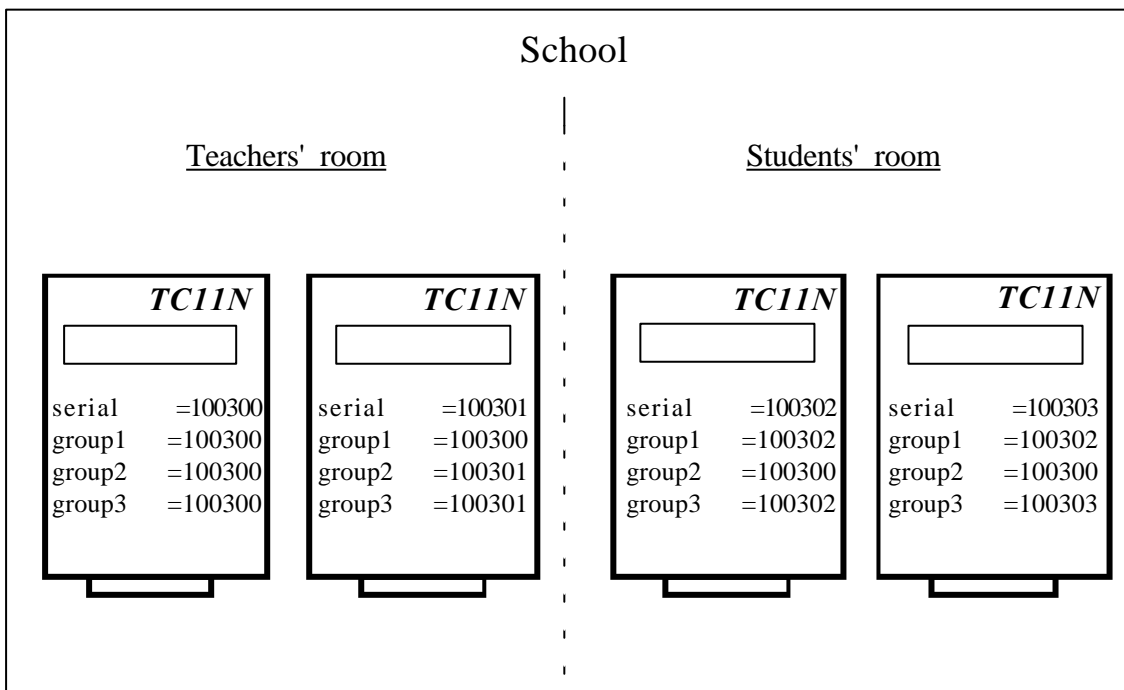
These numbers are displayed at each power-up.

Group 1 is quite different to Groups 2 and 3 : as Group 1 is always recorded on a user's card with the recording function from ADMINISTRATION menu.

In the majority of cases, Groups 2 and 3 will never be used. It is only necessary to use them when a copier system has to be set up with *access organized into a hierarchy*.

For example in a school, teachers' cards may be accepted by all the copiers in the school whereas students' cards may not be accepted on those copiers reserved for teachers.

Example of use with 2 hierarchic levels :



Cards issued on the TC11N **100300** or **100301** can be used on all the copiers in the school.

Cards issued on the TC11N **100302** or **100303** can only be used in the students' room.

detail of the operations required to modify the group 1 number of a **TC11N**

<p><i>a</i></p> <div data-bbox="576 365 959 450">ADMINISTRATION</div> <p>⬇ ⬇ ⬇ ⬇ ⬇ <i>Selects the "TC11N parameters" sub-menu.</i></p>	
<p><i>b</i></p> <div data-bbox="576 595 959 680">TC11N params</div> <p>➡ <i>Enters in the "TC11N parameters" sub-menu.</i></p>	
<p><i>c</i></p> <div data-bbox="571 824 954 909">Serial 100123</div> <p>⬇ <i>skips over the serial number</i></p> <p>⬇ <i>skips to the functioning Mode</i></p>	
<p><i>d</i></p> <div data-bbox="584 1111 967 1196">Group</div> <p>➡ <i>Enters in the "Group" sub-menu.</i></p>	
<p><i>e</i></p> <div data-bbox="571 1350 954 1435">Group 1: 100123</div> <p>Ⓒ <i>Requests group 1 number modification</i></p>	
<p><i>f</i></p> <div data-bbox="555 1581 978 1666">Insert. REF. card</div> <p><i>TC11N waits for the insertion of reference TC11N Administration (or Operator) card</i></p>	
<p><i>g</i></p> <div data-bbox="560 1832 986 1917">Group 1: 100124</div> <p><i>After insertion of the 100124 Administration card for example the new group 1 number comes to display</i></p>	
<p><i>h</i></p> <p>⬅ <i>returns to main menu</i></p>	

To modify group 2 or group 3 number you will proceed the same way, see diagram page 12 to locate group 2 or group 3.

4.6. LANGUAGE

This parameter indicates in which language, the messages are displayed on TC11N screen. At the date of issuing this documentation, the choices available are: Danish, Dutch, English, Finnish, French, German, Greek, Italian, Polish, Portuguese, Spanish and Swedish. In order to view possible languages, strike \downarrow or \uparrow after you have requested a modification by \textcircled{C} (see diagram page 12 to locate the "language" parameter).

4.7. USER'S CARD AUTOMATIC EJECTION

This parameter enables a user's card to be automatically ejected after a certain time has elapsed with no copies having been made. This waiting time is adjustable by steps of 10 seconds. "Automatic Eject" parameter is adjustable between 1 and 99, which means a maximum of 990 seconds. Value 0 has a particular meaning, i.e. there is no automatic ejection. This parameter is plant adjusted to 12, which means 2 minutes (see diagram page 12 to locate "AutoEject" parameter).

4.8. FUNCTIONING MODE

The "Mode" parameter in a **Cartadis TC11N** for copier machine must always have the value CopierX (where X represents a digit from 1 to 9).

The value "Timer" of this parameter defines a particular functioning mode of time management (Timer mode, see page 8).

The value "Keyboard" of this parameter defines a particular functioning mode of value to be debited from the card, entered on the keyboard (see page 8).

By default, this parameter "Mode" is set to **Copier1**.

4.9. BEEP / EJECT IF ERR.

4.9.1. Beep

- If the parameter "Beep" is set to **Yes**:
 - . A sound signal is given out every minute as long as a card is waiting for being manually taken out from the reader.
- If the parameter "Beep" is set to **No**:
 - . No sound signal.

4.9.2. Eject if Err.

This parameter is plant adjusted to 0.

It enables a user's card to be locked inside the reader in case of writing error (switching the reader to OFF/ON by an operator enables the card to be ejected).

On the contrary, this parameter represents a time limit (in secondes) from 1 to 99 (i. e. from 1 to 99 secondes) during which the card remains inside the reader in case of writing error.

The card is automatically ejected once this time has elapsed.

4.10. NO REBOOT

This parameter is plant adjusted to No.

For the sake of safety reasons, after a 4 minute inactivity time within the Administration menu, **Cartadis TC11N** automatically leaves this program. This function is valuable in case the Administrator forgets leaving from Administration menu (prevents any user from card reloading). In case it is not wished, example of a TC11N intended to card reloading and located in a safe place, the "No reboot" parameter must be set to value Yes.

TC11N AND ITS OPERATOR

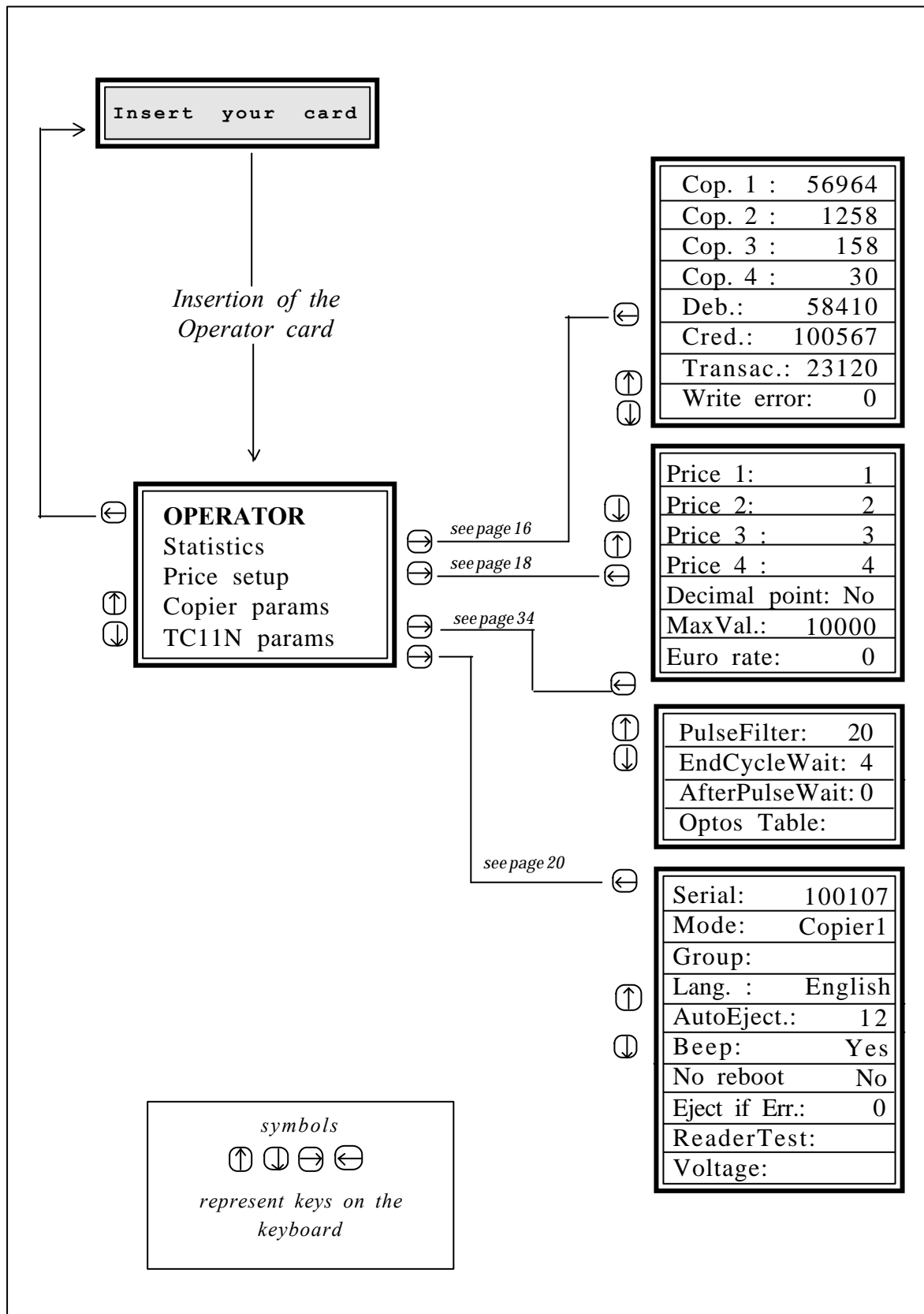
The **OPERATOR** is a person who owns the operator's card; this person has a restricted view of the **TC11N** programming functions. The card recording functions are inhibited with this card while all others functions are accessible.

An other difference between **ADMINISTRATION** and **OPERATOR's** card lies in the acceptance checks carried out by **CARTADIS TC11N** :

- **ADMINISTRATION** card is only accepted by the **TC11N** with which it has been supplied (serial number check).
- **OPERATOR's** card is accepted by all **TC11N** bearing the same group number (set of compatible units).

Therefore an operator's card can be safely given to a service technician or other person without fear for card recording.

Functions accessible with operator's card are described on the next page.



After a 4 minute inactivity time within the OPERATOR function, **Cartadis TC11N** automatically leaves this program and reverts to user mode.

If one of the following parameters is modified, **Cartadis TC11N** requires administration card to save them at exit menu time :

- price 1 (A4-size Black and White) and price 2 (A3-size Black and White),
- Decimal point,
- End cycle wait, After pulse wait parameters,
- Group1, Language, Automatic ejection delay parameters,
- Functioning mode (copier 1, copier 2 etc ...).

In case of modification of one of these parameters without the administration card, the only way to release the **Cartadis TC11N** from its request **"Insert ADMIN card"** is to switch power OFF/ON.

Warning! if the administration card is not updated with the modified parameters in case of "memory error" of the unit and restoration of the parameters with the administration card, all the parameters may not be properly restored.

The group number of an **OPERATOR** card can be modified by duplication of the group number of another **Cartadis TC11N**. This facility enables to operate with several **OPERATOR** cards for the sake of the same group of **TC11N**.

To overwrite the group number of an operator card with the **TC11N** group number, proceed as follows :

- 1 - by means of the Administration card, go to "record = value" menu item,
- 2 - set a dummy value to record,
- 3 - insert the operation card.

COMPATIBILITY with CARTADISEQUIPMENT

CARTADIS TC11N compatibility with former generations of magnetic card equipments is limited. Below is the description of possible compatibilities with units having the same group number.

Compatibility with the TC1, TC2, TC3 units:

None.

Compatibility with the TC11:

Whole compatibility provided that groups numbers are lower than 99999.

Compatibility with the TC4:

Whole compatibility provided that groups numbers are lower than 99999. **Account** number and **access** code are ignored and left as they are, only the **value** field of TC4 user's card is taken into account. If the user's card has no **value** field the TC11N displays the message "Unknown card".

Compatibility with the TC4N:

Account number and **access** code are ignored and left as they are, only the **value** field of TC4 user's card is taken into account. If the user's card has no **value** field the TC11N displays the message "Unknown card".

Compatibility with the DRC4:

Whole compatibility provided that groups numbers are lower than 99999.
Compatible with reloadable cards only (not for disposable card).

INSTALLATION

7.1. MECHANICAL FASTENING

Cartadis TC11N is supplied with a two side adhesive on its back. You can use this adhesive to fasten it on a horizontal area of the copier.

If you have ordered the optional bracket you can fasten the **TC11N** either directly on a copier side or on the wall behind the copier.

7.2. ELECTRICAL CONNECTION

Cartadis TC11N must be connected by a photocopier specialist. **TC11N** is "seen" by the photocopier as a key counter and has therefore to be connected like a key counter. **TC11N** has no power pack of its own, it is supplied from the +24V power supply of the photocopier, either through the +24V available on one of the counter pulse terminals or, if this is not present, directly from the +24V photocopier power supply.

When a full galvanic insulation between the **Cartadis TC11N** and the photocopier is requested either by the end user or by copier manufacturer, an optional external power supply is needed. This power supply has to be connected to the connector located on the rear side of the unit, in that case, the switch accessible from the bottom of the case has to be set to "B" see scheme page 33.

In case one does not want to manage the colour or the A3-size, only 6 wires need to be connected to the copier.

- | | |
|---------------------|-------------------------------|
| - yellow wire | = terminal 1 of counter pulse |
| - white wire | = terminal 2 of counter pulse |
| - grey wire | = terminal 1 of copier shunt |
| - dark blue wire | = terminal 2 of copier shunt |
| - green wire | = 0 Volt |
| - yellow/green wire | = protective ground |

Once copier has been turned off, connect the four wires, YELLOW, WHITE, BLUE, GREY, to "key counter" connector (see diagram next page).

Green 0Volt wire connection:

- If the 0Volt of your copier is linked to mechanical ground, then you can link green wire to mechanical ground for simplicity.
- If the 0Volt of your copier is not linked to mechanical ground, which is the case for Ricoh's original copiers (Gestetner, Infotec, Nashua, Rex Rotary...), then green wire must absolutely be linked with the 0Volt of your copier's +24V supply (0Volt is generally available on one of the shunt terminals).

Yellow/green wire connection:

- This wire must always be linked to the copier's mechanical ground.

Once all 6 wires have been connected, **TC11N** is ready for work, and switching the copier on induces **TC11N** to also switch on.

Particular case of copiers which do not supply 24V on the counter pulse terminals (some Panasonic copier machines):

The + 24V supply to **TC11N** has to be established with red wire linked to copier + 24V supply (remaining 6 wires connected as per above). The switch accessible from the bottom of the case has to be set to "B"

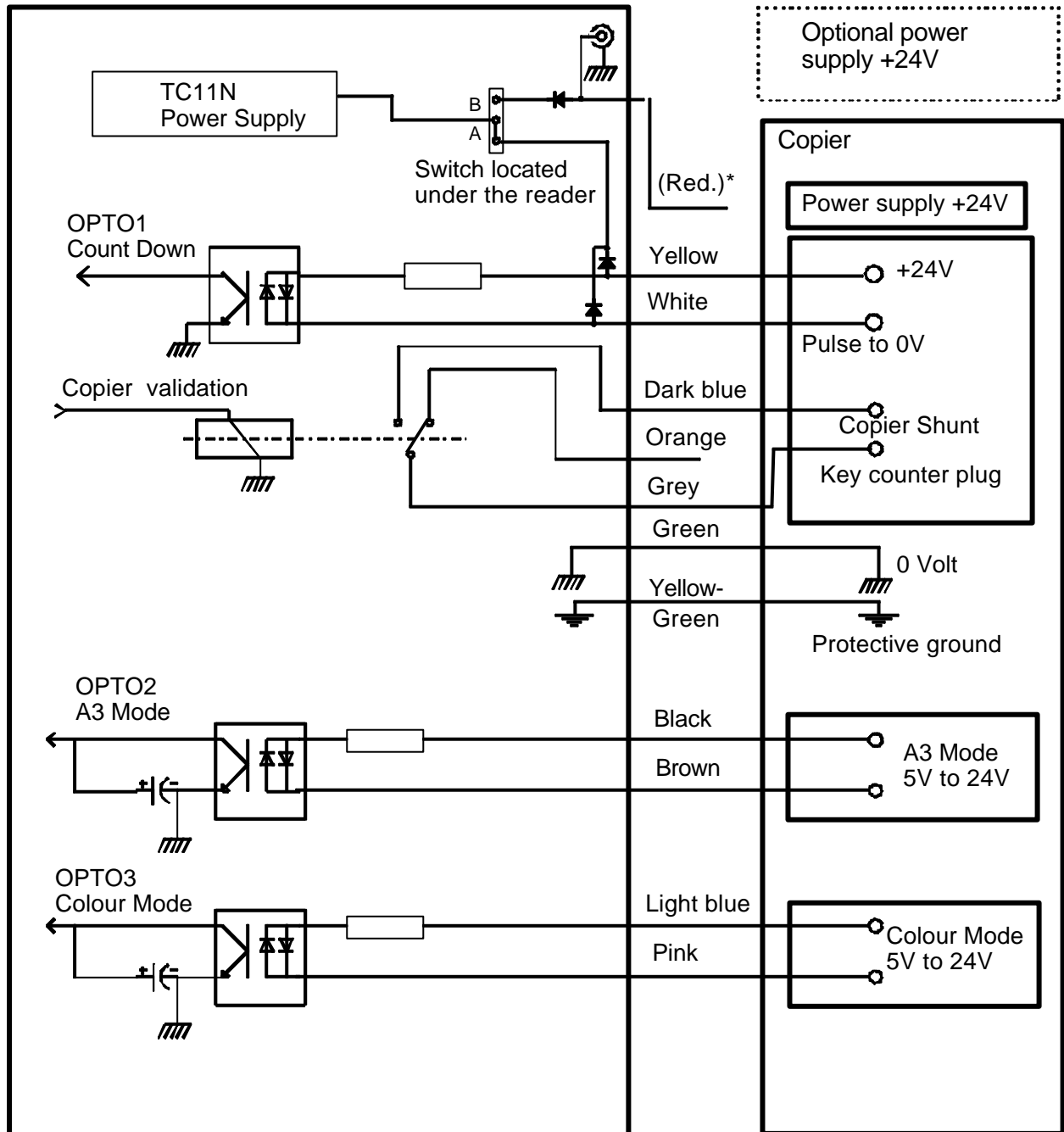
Particular case of CANON copiers (analogical):

These copiers do not supply +24V to the card counter plug. Connections have to be achieved as follows:

- | | | |
|---------------------|-----------------------------|---------------------------|
| - white wire | = +24V, copier power supply | card counter
connector |
| - yellow wire | = pin n° 4 (0V pulse) | |
| - grey wire | = pin n° 3 | |
| - dark blue wire | = pin n° 1 | |
| - green wire | = copier ground | |
| - yellow/green wire | = copier ground | |

Case of CANON digital copiers, contact the Cartadis technical department.

Cartadis TC11N Copier Interface



* You don't have to connect systematically the red wire, see text

7.3. A3-SIZE OR COLOUR COPIES

The **Cartadis TC11N** can manage up to four different prices according to the size of the copy made (A4, A3 Black and White or colour). Nevertheless, this feature is only available with copier machines delivering status signals (as the range of copiers Aficio from Ricoh or the digital copiers from Sharp).

The "**mode**" parameter from sub-menu "TC11N Parameters" defines the TC11N behaviour, i. e. the electric levels that will debit prices 1 to 4. For the moment, it may have the two following values:

Copier 1

The 2 opto-couplers Opto 2 and Opto 3 (see previous page) enable the **TC11N** to know the copier current status (A4, A3 Black and White or colour). The price corresponding to the copy-size will be debited from the user's card as soon as the Opto1 has received a pulse.

Copier 2

One pulse on the Opto 1 systematically debits the price 1.
One pulse on the Opto 2 systematically debits the price 2.
One pulse on the Opto 3 systematically debits the price 3.

Other modes may be defined (on the site included); contact the Cartadis technical department if necessary.

7.4. COPIER PARAMETERS

In addition to the above described "mode" parameter, three parameters enable to adapt **TC11N** to the specific model of copier you have:

PulseFilter: This parameter represents the minimum number of milliseconds which the copier count down pulse must last to be considered as a valid pulse. This parameter is adjustable between 1 and 999, and is intended for protection against count down pulses with bouncing rising and sinking fronts. For optimal setting of this parameter, you must proceed by trial and error:

- If this parameter is set too high, **TC11N** may disregard count down pulses.
- If this parameter is set too low, **TC11N** will count down more copies than were made.

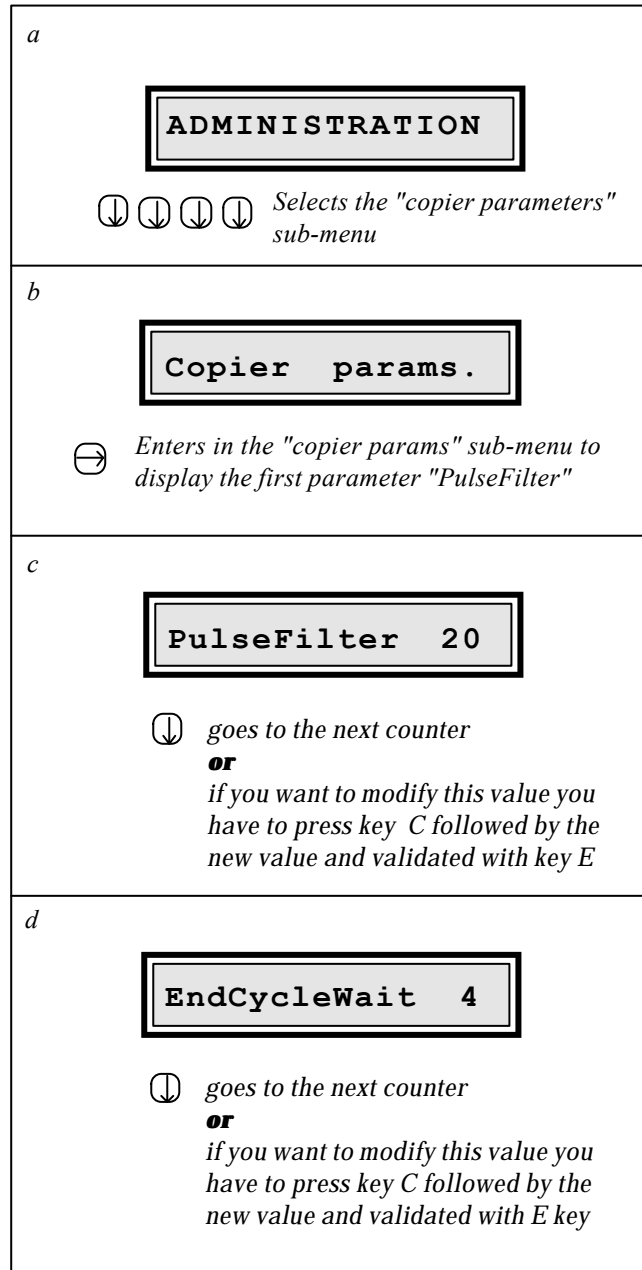
Adjusting "PulseFilter" to the default value 20 milliseconds generally yields good results.


EndCycleWait: This parameter represents the number of seconds during which TC11N will wait for possible copy pulses, after user has struck any key on the keyboard, before ejecting the card. This time is adjustable from 0 to 99 seconds, it is usually set to 4 (default value).

This parameter is especially useful on copiers which send the "copy pulse" at the end of the copy cycle.

AfterPulseWait: This parameter enables shunt opening to be delayed once card copy credit reaches 0. This delay is adjustable between 0 and 9 seconds and is useful on some copiers which do not accept shunt opening upon countdown pulse, and therefore often cause paper to jam or copies not to be fully printed, the default value is 0.

To display or to modify these parameters the handlings from the main menu are:



<i>e</i>	<div data-bbox="619 309 1008 392" style="border: 2px solid black; padding: 5px; text-align: center;"> AfterPulseWait 0 </div> <p data-bbox="627 421 1018 515"><i>if you want to modify this value you have to press key C followed by the new value and validated with E key</i></p>
<i>f</i>	<div data-bbox="651 645 933 683" style="text-align: center;">  <i>returns to main menu</i> </div>

7.5. INSTALLATION VALIDATION PROCEDURE

When several units are to be installed on the same site, **TC11N** group numbers may first have to be made compatible, prior to recording any card (see page 20).

Check the power supply voltage by means of the integrated voltmeter (menu "Voltage" from sub-menu "TC11N parameters". It must be contained between 22 and 26 volts.

To check **TC11N** for correct operation, a user's card must first be recorded (see page 14), then copies must be made by means of this card, and the following items checked:

- An A4 copy counts down one and deducts a single copy on the card; item to be checked in single and multicopy operation. If counting down is wrong, refer to page 34 about "pulse filter" parameter adjustment. If it is preferred not to count down in single units, but in another value, refer to page 18 about "price 1" adjustment.
- According to the installation, check the amounts debited when an A3 copy-size is made in Black and White and maybe in colour.
- Check "End cycle wait" parameter for correct adjustment using the following procedure:
 - 1 - insert a valid user's card,
 - 2 - strike the COPY key on copier and immediately after press a key on **TC11N**,
 - 3 - check if a copy has been counted down on the card.

SERVICE

To get good operation from the unit, the following care is advisable:

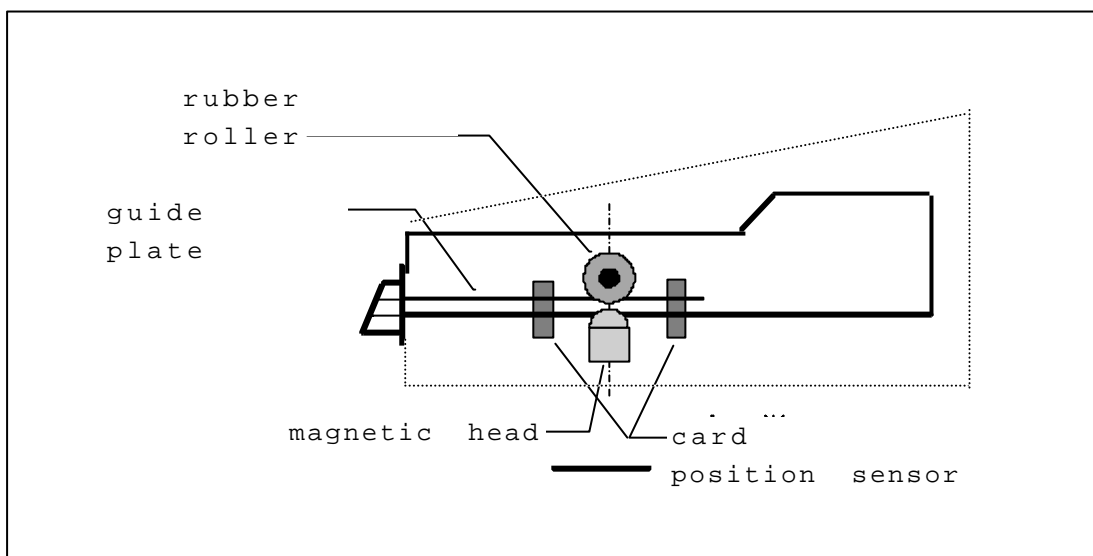
- clean rubber driving roller with a cloth soaked in alcohol.
- clean magnetic head with a cleaning card soaked in alcohol.
- dedust reader assembly with a compressed air spray.
- check write error counter.

The frequency of this process depends on the working environment. If **Cartadis TC11N** is installed in an office, then these operations can be considered as required every 20000 transactions, or every six months if this number of transactions is not reached.

The cleaning process must be carried out with the unit disconnected, this applies also for cover removal and replacement. After cleaning the write error counter must be reset.

In order to easily locate the components to be cleaned, refer to the reader sectional view on the next page.

In case the write error counter is over 5, the unit needs an urgent cleaning. If, after the cleaning process, the unit still has write error problem the magnetic head must be changed.



In case of replacement of the electronic board, please read page 40 information about "memory error" and serial number modification.

TROUBLE- SHOOTING

SCREEN REMAINS OFF

It is surely a wiring problem:

- Check green wire connection.
- Copier supplies no +24V on one of counter pulse terminals, then +24V must be supplied via red wire. Check the switch under the reader, see page 32.

NO ENABLE TO COPIER WITH A USER'S CARD

It is surely a wiring problem:

- Check copier SHUNT grey and dark blue wire connection.

NO COUNT DOWN OF COPIES

The problem may come from the wiring or a parameter is misadjusted in TC11N:

- Check yellow and white wires.
- Check 1 and 2 prices.
- Reduce "Pulse Filter" parameter.

TC11N DISPLAYS "MEMORY ERROR"

A memory error has occurred as a result of : hardware trouble, major electric interference, disconnected electronic cards, etc. To clear this error, just insert "Administration" card into the unit again.

Attention: You should not insert the "Administration" card of another TC11N, otherwise unit serial number will change for the one written on this card.

Message "Memory Error" appears when TC11N detects that some information which was stored in its memory has been modified without any reason. This damaged information can be related to statistic counters or internal parameters of TC11N. For greater diagnosis accuracy, TC11N displays a figure after message "Memory Error", which means :

- "1" means that the error lies among: serial number, group number, prices 1 and 2, PulseFilter, EndCycleWait, AfterPulseWait, AutoEject, Decimal point, Language. Inserting "Administration" card to clear this error will automatically regenerate all these parameters.
- "2" means that the error lies in counters: Copies, Debit, Credit, Transaction, WriteError. Inserting "Administration" card will clear the error, but not regenerate distorted information. A readout of these counters has to be made in order to check the extent of memory error.
- "3" means that the error is the accumulation of both the above.

In case the counters need to be cleared the following procedure has to be used:

- 1) Insert Administration card and display the serial number,
- 2) Press key "C",
- 3) While the message "modification forbidden" is displayed enter the code : 2 3 4 6 8,
- 4) After 2 seconds, the message "reset done" is displayed and all the counters are cleared.

In case the electronic board has to be replaced, the new electronic board must be setup with the serial number of the customer's unit. To proceed to this serial number modification the new electronic board must be in "memory error" then the customer's administration card has to be inserted.

In order to switch the TC11N unit in "memory error" two procedures are available depending if you own or not the administration card :

With administration card:

- 1) Insert Administration card and display the number of transactions,
- 2) Press key "C",
- 3) While the message "modification forbidden" is displayed enter the code : 2 3 4 6 8,
- 4) After 2 seconds, the message "memory error 1" is displayed.

Without administration card:

- 1) Switch off the copier and set a copier shunt by means of any electric wire,
- 2) Switch the power on,
- 3) While the software version is displayed press and hold the "C" key,
- 4) With the "C" key still depressed make a copy,
- 5) The **TC11N** displays "memory error 1".

LIST of MESSAGES

Blank card	This is a new card, ready for recording.
Unknown card	This card has not been read by TC11N in spite of several attempts, it is demagnetized, physically damaged, or it is not an original Cartadis card.
Illegal card	This is a true Cartadis card, but this type of card is not the one presently expected by TC11N . E.g. attempt to record an "Administration" card.
Worn card	Attempt to record a card which has carried out over 3000 transactions.
Card jam	Card is jammed inside the unit for mechanical reasons. Plug TC11N out and in. If message comes on again, cut off power supply, then open cover and pull card out.
Illegal extract	This card has not been recovered from the unit by usual means. This is an attempted fraud or a hardware breakdown.
Write error	TC11N cannot write the new number of copies still available. The number of copies displayed on screen is the balance of copies of this card, it has to be noted and refunded to user. Plug TC11N out and in, generally card is definitively destroyed.
Group error	The magnetic track of this card does not have the same group number as TC11N . The group number of a user's card can be changed by recording it again.

Serial Error This "Administration" card does not correspond to this **TC11N**.

Memory error See page 40.

TECHNICAL SPECIFICATIONS

TYPE	TC11N
FUNCTION	Debit card system for photocopier
ELECTRONICS	Very large scale integrated 32 bits microcontroller
MEMORY	EEPROM for parameters backup
OPERATING CONDITIONS	
Moisture	20% - 90% RH
Temperature	10 - 50°C
USE	Indoors only
DIMENSIONS	100mm (W) x 90mm (H) x 180mm (D)
WEIGHT	750 g
POWER SUPPLY	24V DC
CONSUMPTION	50 mA idle 700mA for 0,05 sec at motor start 300mA during motor rotation

COUNTER CAPACITIES

Card value

6 digits, i.e. max.:
if non-decimal mode 999 999
if decimal mode 9 999.99

Counters:

Copy 1 to 9 digits, i.e. max.:
Copy 4 999 999 999

Debit 9 digits, i.e. max.:
Credit 999 999 999
or 9 999 999.99

Transactions 7 digits, i.e. max.:
 9 999 999

MANUFACTURER

C.M.F. Fontenay-sous-Bois FRANCE
phone: 33 01 48 77 40 60